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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/393,043	09/09/1999	WEIFANG LUO	08935/151001	2171

7590 12/07/2001

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EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 12/07/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/393,043

Applicant(s)

LUO ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-46 is/are allowed.
- 6) ☒ Claim(s) 47-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-54. Claims 1-46 are allowed. Claims 51-54 remain rejected under 35 USC §112, second paragraph, for the reasons of record. Claims 47-50 are newly rejected under 35 USC §103, as necessitated by amendment. Accordingly, this action is made final.

Claim Objections

2. Claims 51-54 are objected to because of the following informalities: the recitation of “ $(S/V)^2$ cathode OD v. cell diameter” should be “ $(S/V)^2$ / cathode OD v. cell diameter” since $(S/V)^2$ divided by the cathode OD is plotted on the y-axis. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 51-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 51-54 have been amended to incorporate Plots A and B of Figure 8, respectively. The incorporation of these plots is considered to be indefinite, since reference to drawings, photographs, tables, etc. is permitted only when there is no other practical way to

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define the invention. It is a doctrine of necessity, not convenience. *Ex parte Gring* 158 USPQ 109; *Ex parte Maya* 156 USPQ 428; *In re Faust* 86 USPQ 114.

Response to Arguments

Applicant's arguments filed September 27, 2001 have been fully considered but they are not persuasive. It is the Examiner's position that applicants have not shown in a convincing manner that the use of graphs/plots in their claims is *absolutely necessary* because the invention cannot be defined by words alone. The following is taken from *Faust*, cited above:

As to whether requirement that claim "particularly point out and distinctly claim" is satisfied by diagrammatic rather than verbal presentation of subject matter claimed, usage requires that, in ordinary case, claim be stated in words alone; wherever practicable, usage should be observed; but, where verbiage necessary to define areas defined by reference to diagram would be so extensive and involved as to defeat purpose of claim, exception to rule should be made.

The Examiner further submits that pending claims 1-50 of the application are evidence that the invention may in fact be defined by words alone. Therefore, based on the record as a whole, and absent further evidence, the Examiner maintains that applicants have already claimed their invention with sufficient precision and clarity and should not need to further define the invention using graphs and plots.

Claim Rejections - 35 USC § 103

4. Claims 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurca (U.S. Patent 6,074,781).

In Figures 5 and 6, the reference teaches a battery comprising a cylindrical housing (10), a first electrode (20), a second electrode (24) within the first electrode, and a separator (22) which contacts the entirety of the interfacial surface of the electrodes. The first electrode is a cathode comprising manganese dioxide, and the second electrode is an anode comprising zinc (see col. 3, lines 9-22). As shown in Figures 5 and 6, the interfacial surface between the electrodes comprises a wavy shape, resulting in a second electrode (24) that comprises "lobes." In Figure 6, it may be said that the second electrode (24) comprises seven lobes.

The reference does not expressly teach that the second electrode comprises nine lobes.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the reference provides the artisan sufficient motivation to use at least nine lobes in the second electrode. As taught in the abstract, the purpose of Jurca's invention is to increase the anode-to-cathode interfacial area to provide high cell efficiency. Therefore, the artisan would be motivated to make the shape of the interfacial area more "wavy," thereby resulting in more lobes in the second electrode. See column 6, lines 3-7 of Jurca. Accordingly, this limitation is not considered to distinguish over the reference.

Allowable Subject Matter

5. Claims 1-46 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:

The instant claims all recite that values of the quantity $(S/V)^2$ must be above a certain value. The art of record, most notably Mick et al. and Jurca, teaches that S (separator surface

area) is beneficially made large. However, the art of record does not recognize a relationship between area to cathode volume (S/V), nor does it indicate that the square of such a ratio is a result-effective parameter. Therefore, pursuant to MPEP §2144.05(II)(B), the recitations of ranges based on this parameter render the instant claims allowable.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette, can be reached at (703) 308-0756. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 305-5408 or (703) 305-5433.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JSC

December 6, 2001


GABRIELLE BROUILLETTE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700